TA 54

NEW MEXICO
ENVIRONMENT DEPARTMENT

Hazardous Waste Bureau

2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303
Phone (505) 476-6000 Fax (505) 476-6030
www.nmenv.state.nm.us

BILL RICHARDSON
Governor

DIANE DENISH
Lieutenant Governor

RON CURRY
Secretary

CINDY PADILLA
Deputy Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

October 29, 2007

David Gregory
Federal Project Director
Los Alamos Site Office, Department of Energy
528 35th Street, Mail Stop A316
Los Alamos, NM 87544

David McInroy
Remediation Services Deputy Project Director
Los Alamos National Laboratory
P.O. Box 1663, Mail Stop A992
Los Alamos, NM 87545

RE: NOTICE OF APPROVAL
CORRECTIVE MEASURES EVALUATION PLAN FOR MATERIAL DISPOSAL AREA G AT TECHNICAL AREA 54, REVISION 2
LOS ALAMOS NATIONAL LABORATORY
EPA ID #NM0890010515
HWB-LANL-07-022

Dear Messrs. Gregory and McInroy:

The New Mexico Environment Department (NMED) is in receipt of the United States Department of Energy (DOE) and Los Alamos National Security, LLC (collectively, the Permittees) document entitled *Corrective Measures Evaluation Plan for Material Disposal Area G at Technical Area 54, Revision 2* (hereafter, the Plan) dated October 2007 and referenced by LA-UR-07-6882/EP2007-0630. NMED has reviewed the Plan and hereby issues this Notice of Approval with the following direction.

In Appendix E of the Plan and in the October 15, 2007 transmittal letter for the Plan, the Permittees state that rapid transport of volatile organic compounds in the liquid phase through the Cerros del Rio basalt is not likely to occur, because perched groundwater was not discovered beneath Material Disposal Area (MDA) G in the investigation process. NMED finds such conclusions premature, and notes that precipitation and/or snowmelt while evapotranspiration is less active may seasonally increase infiltration rate, resulting in transient saturation of the

subsurface. Sequences of drying and wetting in the subsurface in response to local infiltration events have been observed by the DOE in both shallow and deep vadose zones at a waste site located on the Idaho National Engineering Laboratory (McElroy and Hubbell, 2004. Evaluation of the conceptual flow model for a deep vadose zone system using advanced tensiometers. *Vadose Zone Journal* 3:170–182).

More importantly, isolated and perched groundwater was encountered in the Cerros del Rio basalt in earlier investigations at MDA L in 1994 and 1995. Because of geologic similarity beneath MDAs L and G (as shown in Figure 2.7-3 in the Plan), and their close proximity (MDA L is only 3,000 feet northwest of MDA G), the presence of perched groundwater in isolated zones is also plausible below MDA G. To ensure the long-term effectiveness of remedies to be selected for MDA G, the Permittees must therefore consider the presence of isolated perched water as a possible scenario in conducting the Corrective Measures Evaluation, such that potential fast transport of contaminated water to the regional aquifer can be adequately addressed.

Should you have any questions or comments, please contact Dave Cobrain at (505) 476-6055 or Hai Shen at (505) 476-6039.

Sincerely,

James P. Bearzi
Chief
Hazardous Waste Bureau

JPB:hs

cc: D. Cobrain, NMED HWB
J. Young, NMED HWB
K. Roberts, NMED HWB
H. Shen, NMED HWB
T. Skibitski, NMED DOE OB
S. Yanicak, NMED DOE OB, MS J993
B. Olson, NMED GWQB
L. King, EPA 6PD-N
G. Rael, DOE LASO, MS A316
F. Bosiljevac, DOE LASO, MS A316
S. Stiger, LANL ENV, MS J591
C. Mangeng, LANL ENV, MS J591
J. Hopkins, LANL ENV, MS M992

file: Reading and LANL TA-54 (MDA G, SWMU 54-013(b))

Los Alamos National Laboratory

ENVIRONMENTAL RESTORATION

University of California
Environmental Restoration, MS M992
Los Alamos, New Mexico 87545
505-665-4557
FAX 505-665-4747

U. S. Department of Energy
Los Alamos Area Office, MS A316
Los Alamos, New Mexico 87544
505-665-7203
FAX 505-665-4504

Ms. Barbara Driscoll
NM/Federal Facilities Section
United States Environmental Protection Agency
Region 6
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

Date: January 26, 1995
Refer to: EM/ER:95-J019

Dear Barbara:

SUBJECT: NOTIFICATION OF WATER ENCOUNTERED DURING DRILLING

During drilling below Material Disposal Area (MDA) L on December 11, 1994, water was encountered at approximately 508 ft depth (elevation about 6236 ft). As described in the approved work plan modification for Operable Unit 1148, this hole is being drilled at an angle to monitor for the presence of volatile organic compounds beneath MDA L. The production of water in this well is very slow (initially estimated at less than two gallons/day, and currently almost non-existent), which indicates that this may be perched water. We have cored the basalt at the depth of the water and obtained one sample of water. The estimated elevation of the main aquifer at this location is 5850 ft.

Because we have achieved the objective of extending the well through the area of MDA L projected downward, we have terminated drilling and are completing the well so that moisture can be monitored in addition to the vapor monitoring capabilities to be installed. We also plan to monitor a zone just above the basalt, at about 380 feet depth, which was moist as we drilled through it.

Another monitoring well will be emplaced approximately 350 ft east of this well. Our current plans are to complete that well in the basalt. We plan to sample water as it is encountered in that well.

Please call Cheryl Rofer at (505) 667-2988 or Mike Gilgosch at (505) 667-5794 if you have any further questions.

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TR

Teri D ✓

Sincerely,

Jorg Jansen, Project Manager
Environmental Restoration

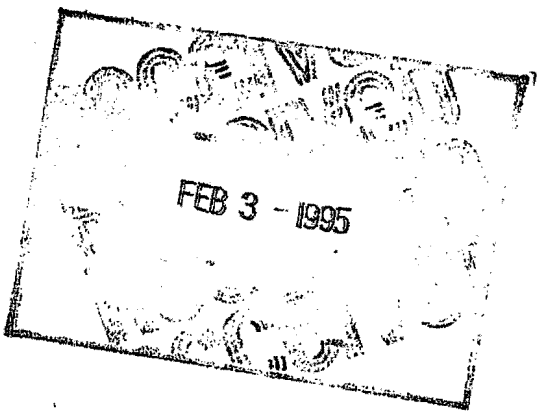
Sincerely,

Theodore J. Taylor, Program Manager
Los Alamos Area Office

JJ/TT:plp

Cy:
C. Rofer, EES-1, MS D462
D. McInroy, EM/ER, MS M992
B. Swanton, NMED-AIP, MS J993
RPF, MS M707

Benito Garcia
Hazardous and Radioactive Material Bureau
State of New Mexico Environment Department
525 Camino de los Marquez
Santa Fe, NM 87502



Environmental
Restoration

Los Alamos National Laboratory

ENVIRONMENTAL RESTORATION

University of California
Environmental Restoration, MS M992
Los Alamos, New Mexico 87545
505-665-4557
FAX 505-665-4747

U. S. Department of Energy
Los Alamos Area Office, MS A316
Los Alamos, New Mexico 87544
505-665-7203
FAX 505-665-4504

Date: APR 7 1995
Refer to: EM/ER:95-132

Ms. Barbara Driscoll
NM/Federal Facilities Section
United States Environmental Protection Agency
Region 6
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

Dear Ms. Driscoll:

SUBJECT: NOTIFICATION OF GROUNDWATER ENCOUNTERED BELOW MATERIAL DISPOSAL AREA (MDA) L

During air-drilling of our Resource Conservation and Recovery Act Phase I investigation borehole Hole 54-1016 below MDA L on March 9, 1995, water was encountered at a depth of 592 feet. The hole, designated 54-1016, is being drilled at an angle to monitor for the presence of volatile organic compounds beneath MDA L (Operable Unit 1148; now Field Unit 5). The production of water is estimated at less than two gallons per day. The elevation of the wet horizon in the hole is approximately 6188 ft, while the elevation of the main aquifer at this location is estimated to be 5,850 feet. The evidence indicates this is a small perched water horizon within the basalt section underlying the Bandelier Tuff. Upon encountering the water, we halted drilling and waited until the next morning to attempt to bail a sample. However, no water accumulated in the borehole the next morning, and no sample was obtained. The hole was then drilled to a total depth of 605 ft.

The borehole will be completed as a monitoring well. The design includes seven ports to be installed for vapor monitoring at various depths. Three of these are available for taking water samples, should any accumulate over time. The deepest water port is at 600 ft depth, just below the wet horizon described above.

Sincerely,

Jorg Jansen, Project Manager
Environmental Restoration

Sincerely,

Theodore J. Taylor, Program Manager
Los Alamos Area Office

Environmental Restoration